

**This Page Is Inserted by IFW Operations
and is not a part of the Official Record**

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- **BLACK BORDERS**
- **TEXT CUT OFF AT TOP, BOTTOM OR SIDES**
- **FADED TEXT**
- **ILLEGIBLE TEXT**
- **SKEWED/SLANTED IMAGES**
- **COLORLED PHOTOS**
- **BLACK OR VERY BLACK AND WHITE DARK PHOTOS**
- **GRAY SCALE DOCUMENTS**

IMAGES ARE BEST AVAILABLE COPY.

**As rescanning documents *will not* correct images,
please do not report the images to the
Image Problem Mailbox.**

(12) UK Patent Application (19) GB (11) 2 174 895 A

(43) Application published 19 Nov 1988

(21) Application No 8512534

(22) Date of filing 17 May 1985

(71) Applicant
Rodney David Cole,
24 Pine Walk, Chobham, Surrey

(72) Inventor
Rodney David Cole

(74) Agent and/or Address for Service
R. G. C. Jenkins & Co., 12-15 Fetter Lane,
London EC4A 1PL

(51) INT CL⁴
A46B 3/08 // 11/04

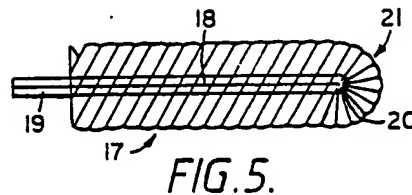
(52) Domestic classification (Edition H):
A4K 181 BA DD
U1S 1124 A4K

(56) Documents cited
GB 0871731 GB 0248988
GB 0320949

(58) Field of search
A4K
Selected US specifications from IPC sub-class A46B

(54) Material applicator

(57) An applicator for a liquid or semi-liquid substance, the applicator having an applicator head comprising an elongate stem 18 and substance retention material projecting from said stem. At the end of the applicator head an elongate support member 19 from which the stem is formed, and which carries the substance-retention material, is bent back upon itself to form a hairpin bend 20, and the substance retention material projecting from the hairpin bend in the support member extends axially beyond the end of the stem at 21.



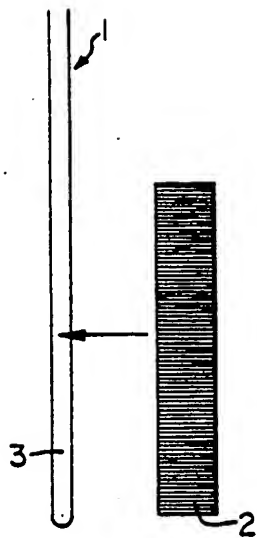


FIG. 1.



FIG. 2.

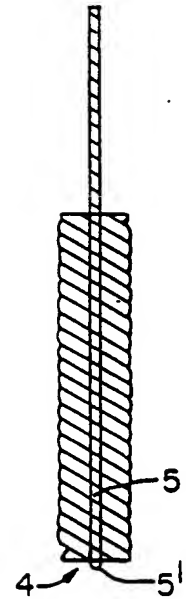


FIG. 3.

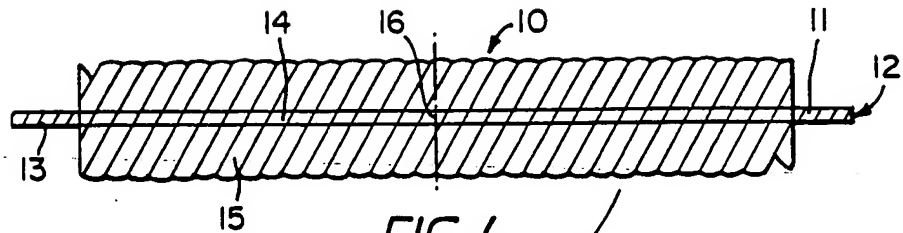


FIG. 4.

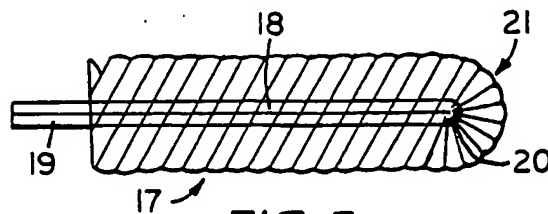


FIG. 5.

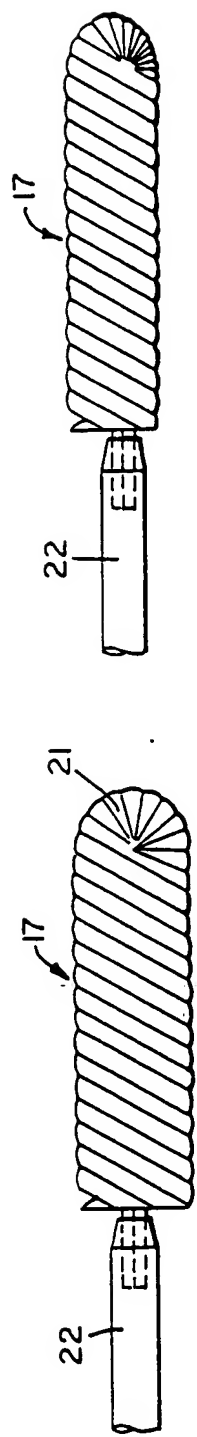


FIG. 6.

FIG. 7.

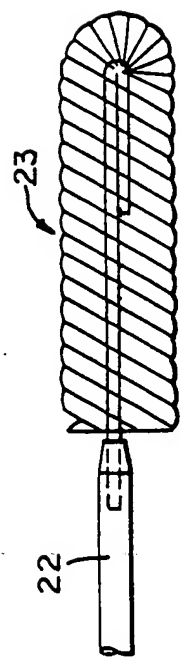


FIG. 8.

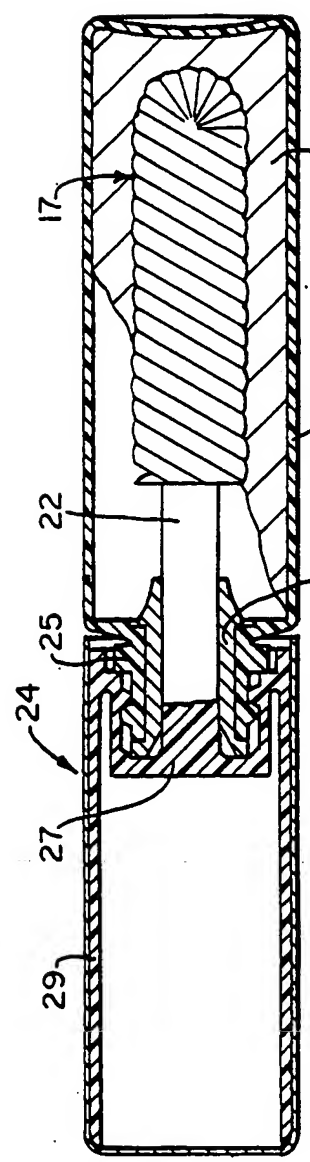


FIG. 9.

SPECIFICATION

Material applicator

5 This invention relates to a material applicator, and particularly, but not exclusively to an applicator of the brush type having a twisted wire stem and radially projecting bristles. The applicator of the invention is particularly, but not exclusively, suitable
10 for use in the application of liquid or semi-liquid cosmetics material, e.g. for applying mascara to the eyelashes.

Figures 1 to 3 of the accompanying drawings illustrate a known process for making a twisted wire
15 stem brush. In this known process, a length of wire is bent mid-way into a hairpin shaped wire element 1, and a row of bristles 2 is inserted into the slot 3 between the two arms of the element 1. The bent end 1a of the element 1 is then clamped and held
20 rotationally fixed, while the two free ends 1b of the arms are twisted about their longitudinal axis, as illustrated. This twisting forms the bristle row into two helical flightings and is continued until the hairpin member forms into a tight double helix in
25 which the bristles are securely rooted.

The resulting form of brush (shown in Figure 3) is satisfactory for many uses where it is only necessary to provide for lateral application of material from the brush. However, in some situations this restriction
30 on the direction of application of the material from the brush is inconvenient. This is particularly so in the case of application of cosmetics materials where the user may wish to apply different amounts of the material to different areas. Where, for example, a
35 brush of the type illustrated in Figure 3 is supplied as part of a mascara cosmetics package, the user may find it very difficult to apply small quantities of mascara to the eyelashes at the corner of the eyelids adjacent the bridge of the nose. This difficulty is
40 attributable to the fact that at the end 4 of the brush all of the bristles extend radially, none of them projecting axially beyond the end 5' of the twisted wire stem 5.

Moreover, this end portion 5' of the twisted wire
45 stem 5 is not only axially exposed but also projects slightly beyond the end of the axial end of the bristles. This is a well-known problem in the design and manufacture of applicators for cosmetics; whilst it is widely acknowledged that this projecting wire
50 end presents a hazard to the user, particularly when applying material in the areas around the eyes, no cheap and practical alternative which fully overcomes the problem has hitherto been available.

The present invention therefore aims to provide an
55 applicator in which the above difficulties are at least partly alleviated, and a method of making such an applicator.

In one aspect, therefore, the invention provides an applicator for a liquid or semi-liquid substance, the
60 applicator having an applicator head comprising an elongate stem and substance retention material projecting from said stem, wherein at the end of said applicator head an elongate support member from which the stem is formed, and which carries the
65 substance-retention material, is bent back upon itself

so that substance retention material projecting from the bend in said support member extends axially beyond the end of said stem.

In another aspect, the invention provides a
70 method of making an applicator for a liquid or semi-liquid substance, the method including forming an applicator head from an elongate support member along which substance-retention material is carried such as to project laterally therefrom the
75 formation of said applicator head including the step of bending said support member back upon itself so that at the bend substance-retention material projecting from the support member extends axially beyond the end of the stem formed by the bent
80 support member.

In the disclosed embodiment, the support member is a double helical twisted wire element from which bristles which constitute said substance retention material project as two helical flightings. Before
85 bending, this bristle support is longitudinally symmetrical and has opposite end portions which do not carry bristles, and this support member is bent back upon itself about its mid point so as to bring these two end portions together. Accordingly, at the end
90 opposite the bend these two end portions together constitute a shaft which can be fixed into the end of a handle for the applicator.

The required profile of the finished applicator can be achieved by trimming the bristles either before or
95 after bending the support back upon itself.

In a further aspect, the invention provides an applicator for a liquid or semi-liquid cosmetics substance, the applicator having an applicator head comprising a twisted wire stem carrying substance
100 retention material which projects laterally from the stem, wherein at the free end of said applicator head a portion of said material projects axially beyond the end of the stem.

In another aspect of the invention provides a
105 cosmetics package comprising any applicator as defined above in combination with a container containing a quantity of liquid or semi-liquid cosmetics material to be applied using the applicator.

Some embodiments of the invention will now be described by way of example with reference to
110 Figures 4 to 7 of the accompanying drawings. In the drawings:-

Figures 1 to 3 illustrate a known process for the manufacture of a twisted wire stem brush;

115 *Figure 4* illustrates a brush element from which an applicator in accordance with the invention can be made;

Figure 5 illustrates in longitudinal section an applicator element, in accordance with the present invention, made from the brush member of *Figure 4*;
120 *Figure 6* illustrates an assembled applicator including the applicator element of *Figure 5*;

Figure 7 illustrates an assembled material applicator having a non-symmetrical brush profile;

125 *Figure 8* illustrates an assembled material applicator according to another embodiment; and

Figure 9 illustrates, in longitudinal section an assembly of the material applicator of *Figure 6* and a container containing cosmetics material to be applied by the applicator.

Figure 4 illustrates a basic brush element 10 from which an applicator in accordance with the invention can be made. This element is made using a technique similar to that illustrated with reference to Figures 1 to 3, except that at an end portion 11 adjacent the end 12 which was clamped fixed during the twisting step either there are no bristles, or the bristles are trimmed down to the stem surface. There is also a portion 13 at the other end (adjacent the ends which were twisted during the twisting step) which are left free of bristles. This brush member 10 thus comprises a central elongate bristle support 14 from which the twin helical flightings of bristles 15 project axially. In the next manufacturing step, the brush member 10 is bent back upon itself at its mid point 16, as illustrated, about an angle of 180° so as to form a brush applicator 17 in which the two halves of the bristle support lie parallel to, and alongside one another to constitute a central stem 18, as illustrated in Figure 5. The two bare end portions 12 and 13 of the bristle support are brought together to form an end shaft portion 19 of the central stem, and this shaft portion may be attached to any suitable form of holder, handle etc 22, for example as shown in Figure 6.

The bristles projecting from the outside of the bend 20 in the bristle support form an end brush portion 21 in which many of the bristles project beyond the end of the stem constituted by the bend. In the illustrated arrangement, this end portion is substantially hemispherical.

The required outer profile of the applicator brush can be achieved either by trimming the bristles of the brush element 10 before bending, or by trimming the bristles of the brush applicator 17 formed by bending the brush element double. Any form of trimming may be applied, and Figure 7 illustrates a finished applicator in which a non-symmetrical form of trimming has been applied whereby the bristles on the upper half of the applicator brush are generally longer than those on the lower half.

The advantage of the arrangement formed by the above-described technique is that it includes end bristles which project axially beyond the end of the central stem. These bristles, when appropriately trimmed, may be used for the application of material in awkward or confined places. The bristles projecting radially along the length of the main part of the brush can be used for material application in less confined places in the same way as in the case of the brush shown in Figure 3.

Also, the curved outer surface of the bend 20 is itself much less dangerous than the end 5' of the Figure 3 brush, and is moreover covered and concealed by the end bristles.

It will be appreciated that to produce the end bristles it is not necessary to bend the brush member about its mid point, nor is it necessary to provide bare stem portions at both ends. Figure 8, for example, illustrates an applicator comprising a brush applicator 23 formed by bending a brush member of the form shown in Figure 3 about a point only about a quarter of the way along the length of the stem carrying the bristles from the end 4.

The above described embodiment uses a basic

bristle brush element 10. It will be appreciated that other forms of material-retention elements, carried by an appropriate type of elongate support member, may be employed. For example an absorbent fibre material, e.g. cotton-based, held in a twisted wire stem (as in a pipe cleaner) may be used.

Figure 9 shows a cosmetics package in which the applicator of Figure 6 is an integral part of a cap and applicator unit 24, which is adapted to fit on the neck 25 of a container 26 containing a quantity 30 of liquid or semi-liquid cosmetics material, such as mascara. In the disclosed package, the holder 22 is integrally formed with, and extends axially from a closure portion 27 of the unit 24, and this closure portion snap-fits over the container neck with the holder 22 projecting axially through a wiper collar 28 inserted into the neck 25. This wiper cleans the holder shaft 22 and wipes the applicator 17 of excess cosmetics material as it is withdrawn from the container. The cylindrical part 29 of the unit 24 provides a handle for the applicator.

CLAIMS

1. An applicator for a liquid or semi-liquid substance, the applicator having an applicator head comprising an elongate stem and substance-retention material projecting from said stem, wherein at the end of said applicator head an elongate support member from which the stem is formed, and which carries the substance-retention material, is bent back upon itself to form a hairpin bend, the substance retention material projecting from said hairpin bend in said support member extending axially beyond the end of said stem.
2. An applicator according to claim 1 wherein the support member is a twisted wire element and wherein said substance retention material comprises bristles rooted in and projecting laterally from said twisted wire element.
3. An applicator according to claim 1 or claim 2 wherein said elongate support member is bent back upon itself about its mid-point.
4. An applicator according to claim 3 wherein said elongate support member has two opposite end portions which do not carry substance-retention material and which in the bent configuration lie adjacent one another and constitute an end shaft portion of the applicator.
5. An applicator for a liquid or semi-liquid cosmetics substance, the applicator having an applicator head comprising a twisted wire stem carrying substance retention material which projects laterally from the stem, wherein at the free end of said applicator head a portion of said material projects axially beyond the end of the stem.
6. An applicator according to claim 5 wherein at said free end said twisted wire stem is bent back upon itself to form a hairpin bend, said portion of said material projecting from said hairpin bend.
7. An applicator according to claim 6 wherein said twisted wire stem is bent back upon itself about its mid-point.
8. An applicator according to claim 7 wherein said twisted wire stem has two opposite end por-

tions which do not carry substance-retention material and which in the bent configuration lie adjacent one another and constitute an end shaft portion of the applicator.

- 5 9. An applicator according to claim 4 or claim 8, and further including an elongate handle member having at one end thereof an axially extending recess in which said end shaft portion is fixed.

- 10 10. An applicator for a liquid or semi-liquid substance, substantially as hereinbefore described with reference to any of Figures 5 to 8 of the accompanying drawings.

11. A cosmetics package comprising any applicator according to any preceding claim in combination
15 with a container containing a quantity of liquid or semi-liquid cosmetics material to be applied using the applicator.

12. A method of making an applicator for a liquid or semi-liquid substance, the method including
20 forming an applicator head from an elongate support member along which substance-retention material is carried such as to project laterally therefrom, the formation of said applicator head including the step of bending said support member back upon
25 itself to form a hairpin bend so that at the bend substance-retention material projecting from the support member extends axially beyond the end of the stem formed by the bent support member.

13. A method according to claim 12 wherein said
30 support member is bent back upon itself about its mid point.

14. A method according to claim 12 or claim 13 including the further step of profiling said substance-retention material before bending the support back
35 upon itself.

15. A method according to claim 12 or claim 13 including the further step of profiling said substance-retention material after bending the support back upon itself.

- 40 16. A method of making an applicator for a liquid or semi-liquid substance, substantially as hereinbefore described with reference to any of Figures 5 to 8 of the accompanying drawings.